IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No.	:	10/698,796	Confirmation No.:	1735
Applicant	:	SATER, Ghaleb A.		
Filed	:	October 20, 2003		
TC/A.U.	:	3738		
Examiner	:	PRONE, Christopher		
Docket No.	:	P1704		
Customer No.	:	28390		
Title	:	CONTROL APPARATUS FOR ACTUATING AN ELONGATE MEDICAL SHAFT		

ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Mail Stop APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Appellant appeals the rejection of Claims 1-8 and 10-13 in the above-captioned application. These claims, as they appear in the Listing of Claims on pages 2-6 of the Amendment filed on August 2, 2006, were rejected in the Final Office Action dated October 13, 2006. A Notice of Panel Decision from Pre-Appeal Brief Review was mailed on February 15, 2007, concluding that the application remains under appeal because there is at least one actual issue for appeal.

This Appeal Brief is being filed in accordance with the rules of 37 C.F.R. § 41.37 and includes a Claims Appendix, an Evidence Appendix, and a Related Proceedings Appendix.

I. REAL PARTY IN INTEREST

The real party in interest is Medtronic Vascular, Inc. Medtronic Vascular, Inc. previously was known as Medtronic AVE, Inc. Medtronic Vascular, Inc. is the assignee of record.

II. RELATED APPEALS AND INTERFERENCES

The appellant knows of no other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS

On December 8, 2006, appellant appealed from the final rejections of Claims 1-8 and 10-13, as listed in the Claims Appendix. Claims 9 and 14-22 were previously withdrawn from consideration pursuant to a restriction requirement.

Prosecution History of Claims Prior to October 13, 2006 Final Office Action

The above-captioned application was originally filed on October 20, 2003, with Claims 1-22.

On March 17, 2006, when responding to a Restriction Requirement mailed March 1, 2006, appellant provisionally elected Claims 1-8 and 10-13 without traverse.

On August 2, 2006, when responding to an Office Action mailed May 24, 2006, appellant amended Claims 1 and 11.

On December 8, 2006, when responding to a Final Office Action mailed October 13, 2006, appellant did not amend, cancel or add any claims.

IV. STATUS OF AMENDMENTS

No amendments are outstanding.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This application is directed to control assemblies useful for moving a shaft of an intraluminal medical device. The control assembly comprises a housing having a channel with at least one inclined surface. A lever having a pair of spaced-apart jaws is pivotably mounted in the channel such that the pair of jaws extends into the channel. The lever may be pivoted to urge at least one of the jaws against the inclined surface, causing the jaws to grip the shaft. The claims being appealed are directed particularly to the following independent claims 1 and 11.

Independent Claim 1

As recited in the Claims Appendix, Claim 1 reads as follows:

> Claim 1: An actuator for moving an intraluminal shaft, the actuator comprising:
>
> a housing having a channel through at least a portion thereof, said channel having at least a first substantially inclined surface therein; and
>
> an actuator assembly pivotably mounted in the channel by a pivot coupled to said housing, said actuator assembly having first and second spaced-apart jaws adapted for releasably gripping the shaft, said spaced-apart jaws extending into said channel, said first and second jaws defining an opening of a first dimension therebetween, said actuator assembly for urging at least one of said first and second jaws against at least said first substantially inclined surface to transition said first dimension to a second dimension.

Figures 3 and 5 below illustrate an embodiment related to Claims 1 and 11. Figure 5 is a top cross-sectional view of the device shown in Figure 3 taken along line B-B. A housing 112 includes a channel 122 having inclined surfaces 114. An actuator

assembly 102 is pivotably mounted in housing 112 by pivot 104. See ¶0027, lines 1-5 and ¶0029, lines 1-4. Actuator assembly 102 has spaced-apart jaws 108 for releasably gripping shaft 116. See ¶0027, lines 7-10 and ¶0029, lines 6-11. Jaws 108 define opening 105 therebetween. See ¶0028, lines 3-6. Actuator assembly 102 may urge jaws 108 against inclined surfaces 114 to transition opening 105 from a first dimension to a second dimension. See ¶0029, lines 4-6.

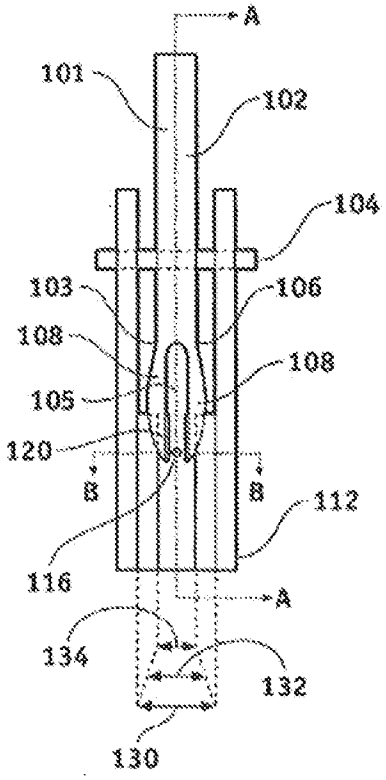


FIG. 3

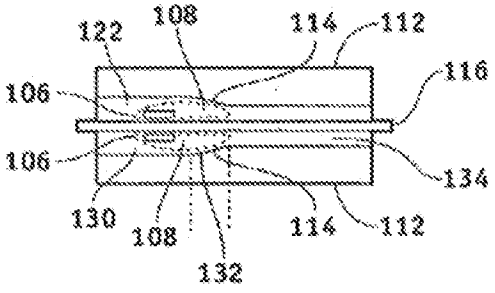


FIG. 5

Independent Claim 11

As recited in the Claims Appendix, Claim 11 reads as follows:

> Claim 11: An actuator for moving a medical shaft of an intraluminal device in a first direction, the actuator comprising:
>
> a housing having a channel through at least a portion thereof and having at least a first substantially inclined surface in said channel, said channel for receiving an end portion of said medical shaft therein; and
>
> an actuator assembly pivotably mounted in said housing by a pivot coupled to said housing and having first and second spaced-apart jaws extending into said channel, said first and second spaced-apart jaws defining an opening therebetween for receiving and releasably gripping said medical shaft, said channel comprising:
>
> a release region wherein said spaced-apart jaws do not engage said medical shaft;
>
> a first engagement region wherein said spaced-apart jaws grip said medical shaft; and
>
> a first transition region between said release region and said first engagement region for urging said spaced-apart jaws into engagement with said medical shaft.

Referring again to figures 3 and 5 above, a housing 112 includes a channel 122 having inclined surfaces 114. Channel 122 may receive shaft 116. An actuator assembly 102 is pivotably mounted in housing 112 by pivot 104. See ¶0027, lines 1-5 and ¶0029, lines 1-4. Actuator assembly 102 has spaced-apart jaws 108 for releasably gripping shaft 116. Channel 122 comprises a release region 130 wherein jaws 108 do not engage shaft 116. Channel 122 also comprises an engagement region 134 wherein jaws 108 grip shaft

116. Channel 122 also comprises a transition region 132 between release region 130 and engagement region 134 for urging jaws 108 into engagement with shaft 116. See ¶0027, lines 5-6 and ¶0029, lines 1-4.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-8 and 10-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 96,880 to Bull.

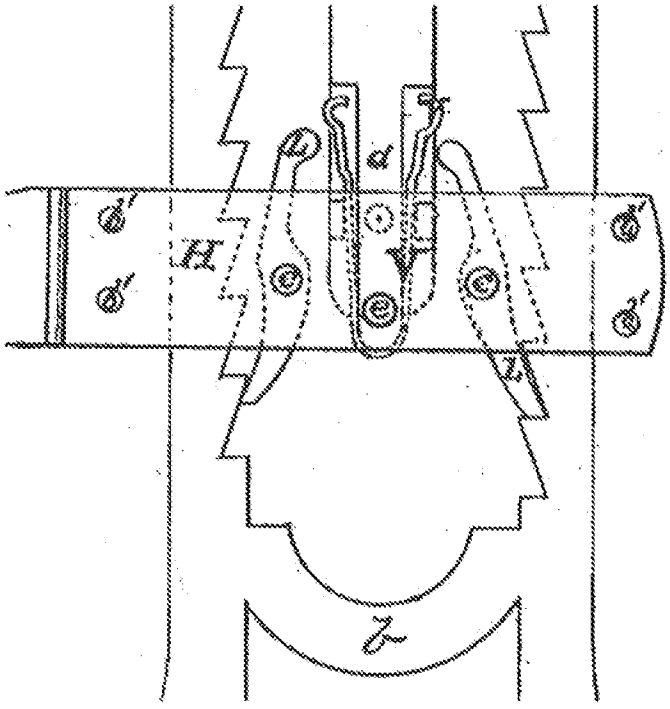
VII. ARGUMENT

Rejection Under 35 U.S.C. § 102(b)

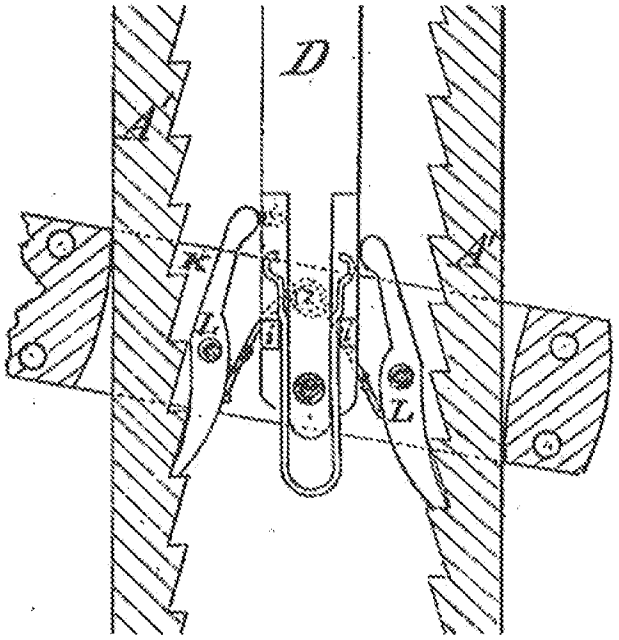
The claims are not properly rejected under 35 U.S.C. § 102(b) because Bull does not disclose every limitation of the claims.

Bull

Bull is directed to a lifting jack. Portions of Bull's figures 1 and 2 are provided below for convenience.



Bull FIG. 1 (partial)



Bull FIG. 2 (partial)

Bull comprises a frame A having parallel rack bars A', A' spaced apart and connected at their lower ends by bed-piece *a* and brace *b*. See figure 1. Lifting bar D is disposed between rack bars A', A' and the lower end of bar D is connected to pivot pin *e*, which is mounted between chucks H and K of operating lever G. Chucks H and K form a slot in Lever G for receiving rack bars A', A' and the lower end of lifting bar D. See the bottom half of column 1 through the top half of column 2. Dogs L, L are pivotally mounted on fulcrum pins *c, c* between chucks H and K, and dogs L, L are spring-loaded outward by spring *s* such that the lower ends of dogs L, L engage with the teeth of rack bars A', A'.

To lift bar D using a first motion, lever G is operated as a first class lever, *viz.* the handle is pushed down to rotate lever G around fulcrum pin *c* nearest the handle, thus raising pin *e* and bar D connected thereto. In a second motion, in alternation with the first motion of lever G, lever G is operated as a second class lever, *viz.* the handle is pulled up to rotate lever G around fulcrum pin *c* farthest from the handle, raising pin *e* and bar D connected thereto. In either the first or second motion, as bar D is raised, the angle

formed between lever G and bar D changes and bar D moves, or slides with respect to both of the dogs L, L.

Bull Fails to Teach Pivot Coupled between Actuator Assembly and Housing

Claim 1 requires, in part

> an actuator assembly pivotably mounted in the channel by a pivot coupled to said housing, said actuator assembly having first and second spaced-apart jaws adapted for releasably gripping the shaft.

Bull does not teach any element(s) corresponding to an actuator assembly that is pivotably mounted in the channel of a housing using a pivot coupled to the housing, as required in claim 1. The outstanding rejection has characterized Bull's frame A as corresponding to the housing of claim 1. See page 2, lines 9-11 of the Detailed Action. Regarding the pivot of claim 1, the rejection alludes to "curved pivot surfaces" in Figure 2 of Bull. The rejection states that a figure is included for clarification, but such a figure is not provided. See Detailed Action at page 2, line 19 through page 3, line 1. Thus, since Bull's figures illustrate numerous "curved surfaces," no specific element of Bull has been identified in the rejection as corresponding to the pivot of claim 1.

The appellant advises that the terms "pivot, pivotable, pivotably, pivotal, pivoted, pivoting, and pivots" are used throughout the specification and the claims in accordance with the plain and ordinary meaning of the recited words. Such forms of the word "pivot" are straightforward, non-technical terms that are easily understood, not only by those of ordinary skill in the art, but also by the average layperson. The appellant also considers Bull's use of various forms of the word "pivot" to be in accordance with the plain and ordinary meaning of the recited words. For lack of doubt, the word "pivot" may be defined as follows, according to *The American Heritage® Dictionary of the English Language*, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2003:

pivot

n.

1. A short rod or shaft on which a related part rotates or swings.

3. The act of turning on or as if on a pivot.

v.tr.

1. To mount on, attach by, or provide with a pivot or pivots.

2. To cause to rotate, revolve, or turn.

Appellant avers that Bull clearly identifies only three pivot elements, namely, pins *c*, *c* and *e*. However, none of Bull's pivot pins is disclosed as making any kind of coupling to a housing, which is considered by the rejection to be frame A. At column 1, lines 35-39, Bull teaches that dogs L, L are pivotably connected, not to frame A, but to operating lever G by fulcrum pins *c*, *c*:

> Between the walls H and K, on each side of the lower end of the lifting-bar D, are pivoted, by means of the fulcrum-pins *c c*, the dogs L L, in such a manner that their lower ends will engage with the horizontal faces of the teeth of the rack-bars. Emphasis supplied.

Since Bull's fulcrum pins *c*, *c* only contact walls, *aka* chucks H and K and dogs L, L, then pins *c*, *c* cannot reasonably be considered to correspond to "a pivot coupled to the housing," as required in part by claim 1.

In figures 1 and 2, and at column 1, lines 28-30, Bull teaches that operating lever G is pivotably connected, not to rack bars A', A', but to lifting bar D by pin *e*:

> D is the lifting bar, which passes up through the collar C, and at its lower end is pivoted between the chucks H K of the operating lever G, by the pin *e*. Emphasis supplied.

Since Bull's pin *e* only contacts lifting bar D and chucks H and K, then pin *e* cannot reasonably be considered to correspond to "a pivot coupled to the housing," as required by claim 1. In view of the foregoing arguments, Bull fails to teach any element(s) corresponding to an actuator assembly that is pivotably mounted in the channel of a housing using a pivot coupled to the housing, as required in claim 1. Therefore, claim 1 is patentable over Bull under 35 U.S.C. § 102(b) because Bull fails to teach all the elements of claim 1.

Bull Fails to Teach Jaws Adapted for Gripping Shaft

Re-stated for convenience, Claim 1 requires, in part

> an actuator assembly pivotably mounted in the channel by a pivot coupled to said housing, said actuator assembly having first and second spaced-apart jaws adapted for releasably gripping the shaft.

The appellant contends that Bull does not teach any elements corresponding to the "first and second spaced-apart jaws adapted for releasably gripping the shaft," as required by claim 1. The outstanding rejection characterizes Bull's elements L, L as corresponding to the claimed jaws. See the Detailed Action mailed October 13, 2006, at page 2, lines 11-12. At page 3, lines 2-3, the rejection states that "it is abundantly clear from figures 1 and 2 that the jaws engage and release the shaft." Appellant avers that reliance on drawing figures alone is an improper basis for characterizing a reference, especially where the written description is contrary to the rejection's characterization of the reference.

The term "dog" is used throughout Bull in accordance with the plain and ordinary meaning of the recited words. Bull discloses dogs L, L pivotally mounted to lever G and releasably engaging ratchet teeth along rack-bars A', A' to permit only upward motion of lever G and bar D attached thereto. *WordNet® 2.1* ©2005 by Princeton University defines "dog" as "6. a hinged catch that fits into a notch of a ratchet to move a wheel forward or prevent it from moving backward [syn: pawl]." The synonymous term,

"pawl" is defined by the *Meriam-Webster On-Line Dictionary* as "a pivoted tongue or sliding bolt on one part of a machine that is adapted to fall into notches or interdental spaces on another part so as to permit motion in only one direction."

In view of Bull's written description and the above examples of dictionary definitions, it is abundantly clear that Bull's dogs L, L, in conjunction with rack-bars A', A', form an example of a well-known rack-and-pawl arrangement. Bull's dogs L, L are nowhere described as "jaws" for gripping, and certainly not for gripping bar D, as argued in the outstanding rejection. Indeed, such an adaptation of Bull's dogs L, L would prevent Bull's invention from operating as described. As bar D rises, it must move, or slide with respect to the dogs L, L as lever G changes the angle it makes with bar D. If either of dogs L, L were to grip bar D, as supposed in the outstanding rejection, then the angle between lever G and bar D could not change, thus bar D could not rise and Bull's lifting jack could not lift any load. Nowhere does Bull teach that dogs L, L are "adapted for releasably gripping the shaft," as required in claim 1. Bull's dogs L, L do not releasably grip lifting bar D. Rather, the only mechanical connection between dogs L, L and lifting bar D is through fulcrum pins *c, c* to operating lever G, then from lever G through pin *e* to lifting bar D.

In view of the foregoing arguments, Bull fails to teach any element(s) corresponding to "an actuator assembly pivotably mounted in the channel by a pivot coupled to said housing, said actuator assembly having first and second spaced-apart jaws adapted for releasably gripping the shaft," as required in part by claim 1. Therefore, claim 1 is patentable over Bull under 35 U.S.C. § 102(b) because Bull fails to teach all the elements of claim 1. Claims 2-4 depend directly or indirectly from claim 1 and are patentable for the same reasons explained above with regard to claim 1.

Bull Fails to Disclose a Release Region (Claim 5)

Claim 5 depends indirectly from claim 1 and is patentable for the same reasons explained above with regard to claim 1 and the intervening claims 2-4. Furthermore, claim 5 requires in part

> said release region has a width greater than an outside width of said first and second spaced-apart jaws.

The appellants do not concede the characterization in the outstanding rejection, that Bull's dogs L, L correspond to the claimed jaws. However, merely *in arguendo*, Bull's dogs L, L are spring-loaded outwards by spring *s* such that dogs L, L are always in contact with the teeth of rack-bars A', A'. The outside width of dogs L, L, if freed from rack-bars A', A' would be larger than any region of the space between parallel rack-bars A', A'. See Figure 2 and column 2, lines 16-22. Thus, no region between rack-bars A', A' is wider that an outside dimension of dogs L, L. Therefore, Bull cannot reasonably be considered to disclose a release region having a "width greater than an outside width of said first and second spaced-apart jaws," as required in claim 5. Appellants contend that Bull fails to disclose all the elements of claim 5, including the elements of the base claim 1 and any intervening claims. Therefore, claim 5 is patentable over Bull under 35 U.S.C. § 102(b) because Bull fails to teach all the elements of claim 5. Claim 6 depends directly or indirectly from claim 5 and is patentable for the same reasons explained above with regard to claim 5.

Bull Fails to Disclose a Curved Inclined Surface (Claim 7)

Claim 7 depends indirectly from claim 1 and is patentable for the same reasons explained above with regard to base claim 1 and intervening claims 2-4. Furthermore, claim 7 requires

> The actuator according to claim 4, wherein said first substantially inclined surface comprises a curved surface.
>
> Emphasis supplied.

Base claim 1 requires in part "said actuator assembly for urging at least one of said first and second jaws against at least said first substantially inclined surface." Therefore, claim 7 requires that the inclined surface against which the jaw(s) are urged is a curved surface. The appellants do not concede the characterization in the outstanding rejection, that Bull's dogs L, L correspond to the claimed jaws. However, merely *in arguendo*, Bull's dogs L, L are spring-loaded outwards in contact with the teeth of rack-bars A', A'. As shown in above in Bull's figures 1 and 3, the teeth of rack-bars A', A' are fashioned by intersections of flat, planar surfaces. Thus, nowhere in Bull's specification or figures are the teeth of rack-bars A', A' disclosed as having a curved surface. Therefore, Bull cannot reasonably be considered to disclose a "first substantially inclined surface comprises a curved surface" as required in claim 7. Appellants contend that Bull fails to disclose all the elements of claim 7, including the elements of base claim 1 and any intervening claims. Therefore, claim 7 is patentable over Bull under 35 U.S.C. § 102(b) because Bull fails to teach all the elements of claim 7.

In the outstanding Detailed Action at page 2, line 15 the rejection states "Bull further discloses another gripping surface b that is curved." Appellant mentions this statement merely to provide a complete response to all arguments in the rejection. However, a "gripping surface" mentioned in the rejection is not required anywhere in claim 7 or in any other pending claim. The "curved surface" in claim 7 is a further limitation regarding the "first substantially inclined surface" of base claim 1. The "first substantially inclined surface" is not required by any pending claim to be a "gripping surface," as mentioned in the rejection. Finally, curved surface b, as shown in Bull figure 1, is described as a brace. See column 1, lines 21-26. Nowhere does Bull teach brace b coming into contact with any other part of his invention.

Claim 8 depends indirectly from claim 1 and is patentable for the same reasons explained above with regard to claim 1 and the intervening claims 2-4. Claim 10 depends directly from claim 1 and is patentable for the same reasons explained above with regard to claim 1.

Similar to claim 1, independent claim 11 requires in part:

> an actuator assembly pivotably mounted in said housing by a pivot coupled to said housing and having first and second spaced-apart jaws extending into said channel, said first and second spaced-apart jaws defining an opening therebetween for receiving and releasably gripping said medical shaft. Emphasis supplied.

Claim 11 is patentable over Bull for the same reasons explained above regarding claim 1, *viz.* Bull fails to teach any element(s) corresponding to "an actuator assembly pivotably mounted in the housing by a pivot coupled to said housing," said actuator assembly having "first and second spaced-apart jaws . . . for receiving and releasably gripping the medical shaft," as required in part by claim 11.

Bull Fails to Disclose a Channel Having Three Regions (Claim 11)

Furthermore, claim 11 requires in part

> said channel comprising:
>
> a release region wherein said spaced-apart jaws do not engage said medical shaft;
>
> a first engagement region wherein said spaced-apart jaws grip said medical shaft; and
>
> a first transition region between said release region and said first engagement region for urging said spaced-apart jaws into engagement with said medical shaft.

The appellants do not concede the characterization in the outstanding rejection, that Bull's dogs L, L correspond to the claimed jaws. However, merely *in arguendo*, nowhere does Bull disclose a channel comprising three distinct regions with respect to gripping jaws, *viz.* a release region, a first engagement region, and a first transition region as required in part by claim 11. Therefore, claim 11 is patentable over Bull under 35 U.S.C. § 102(b) because Bull fails to disclose all the elements required in claim 11. Claim 12 depends directly from claim 11 and is patentable for the same reasons explained above with regard to claim 11.

Claim 13 depends indirectly from claim 11 and is patentable for the same reasons explained above regarding base claim 11 and intervening claim 12. Furthermore, claim 13 requires in part

> movement of said first and second spaced apart jaws in a first direction causes said first and second spaced-apart jaws to move from said release region, through said first transition region to grip said medical shaft, and into said first engagement region to translationally move said medical shaft in said first direction.

As explained above regarding claim 1, the appellants do not concede the characterization in the outstanding rejection, that Bull's dogs L, L correspond to the claimed jaws. To reiterate the above argument in part, as bar D rises, it must move or slide with respect to the dogs L, L as lever G changes the angle it makes with bar D. If either of dogs L, L were to grip bar D, as supposed in the outstanding rejection, then the angle between lever G and bar D could not change and Bull's lifting jack could not lift anything. Claim 13 requires in part, that the jaws move "to grip said medical shaft" and to "move said medical shaft." Bull's dogs L, L cannot move in any direction such that they would grip bar D and move bar D. Therefore, claim 13 is patentable over Bull under 35 U.S.C. § 102(b) because Bull fails to disclose all the elements required in claim 13.

Considering the above arguments, claims1-8 and 10-13 are patentable over Bull because Bull fails to disclose all the elements of the claims.

Conclusion

In view of the above arguments distinguishing Claims 1-8 and 10-13 over the art of record, appellant respectfully requests that the rejection of these claims be reversed.

Dated: February 26, 2007

Respectfully submitted,

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CLAIMS APPENDIX

Claim 1 : An actuator for moving an intraluminal shaft, the actuator comprising:

a housing having a channel through at least a portion thereof, said channel having at least a first substantially inclined surface therein; and

an actuator assembly pivotably mounted in the channel by a pivot coupled to said housing, said actuator assembly having first and second spaced-apart jaws adapted for releasably gripping the shaft, said spaced-apart jaws extending into said channel, said first and second jaws defining an opening of a first dimension therebetween, said actuator assembly for urging at least one of said first and second jaws against at least said first substantially inclined surface to transition said first dimension to a second dimension.

Claim 2: The actuator according to claim 1, wherein said second dimension is smaller than said first dimension.

Claim 3: The actuator according to claim 2, wherein the second dimension of said opening corresponds to a gripping dimension between said first and second spaced-apart jaws, and said first dimension corresponds to a release dimension between said first and second spaced-apart jaws.

Claim 4: The actuator according to claim 3, wherein said channel comprises:

a release region;

a first gripping region; and

a first transition region between said release region and said gripping region, said first transition region including said first substantially inclined surface.

Claim 5: The actuator according to claim 4, wherein said release region has a width greater than an outside width of said first and second spaced-apart jaws.

Claim 6: The actuator according to claim 5, wherein said first gripping region has a width substantially equal to said outside width of said first and second spaced-apart jaws.

Claim 7: The actuator according to claim 4, wherein said first substantially inclined surface comprises a curved surface.

Claim 8: The actuator according to claim 4, wherein said first transition region further comprises at least a second substantially inclined surface, said first and second inclined surfaces for engaging said spaced-apart jaws respectively to reduce said first dimension.

Claim 10: The actuator according to claim 1, wherein said channel has at least one surface positioned to limit motion of said actuator assembly.

Claim 11: An actuator for moving a medical shaft of an intraluminal device in a first direction, the actuator comprising:

a housing having a channel through at least a portion thereof and having at least a first substantially inclined surface in said channel, said channel for receiving an end portion of said medical shaft therein; and

an actuator assembly pivotably mounted in said housing by a pivot coupled to said housing and having first and second spaced-apart jaws extending into said channel, said first and second spaced-apart jaws defining an opening therebetween for receiving and releasably gripping said medical shaft, said channel comprising:

a release region wherein said spaced-apart jaws do not engage said medical shaft;

a first engagement region wherein said spaced-apart jaws grip said medical shaft; and

a first transition region between said release region and said first engagement region for urging said spaced-apart jaws into engagement with said medical shaft.

Claim 12: An actuator according to claim 11, wherein said first transition region comprises first and second substantially opposed inclined surfaces separated by a first dimension proximate said release region and separated by a second dimension proximate said first engagement region, said second dimension being smaller than said first dimension.

Claim 13: An actuator according to claim 12, wherein movement of said first and second spaced apart jaws in a first direction causes said first and second spaced-apart jaws to move from said release region, through said first transition region to grip said medical shaft, and into said first engagement region to translationally move said medical shaft in said first direction.

EVIDENCE APPENDIX

[NONE]

RELATED PROCEEDINGS APPENDIX

[NONE]